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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,678	10/22/2003	Walter Dudovicz	CS-21.274-3	4920

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EXAMINER	
NGUYEN, GEORGE BINH MINH	
ART UNIT	**PAPER NUMBER**
3723	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

08

Office Action Summary	Application No.	Applicant(s)	
	10/689,678	DUDOVICZ, WALTER	
	Examiner	Art Unit	
	George Nguyen	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,4,6-8,10,12-14,16,18-20,22 and 24 is/are rejected.

7)☒ Claim(s) 3,5,9,11,15, 17, 21, and 23 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 102303.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of Applicant's amendment filed on October 22, 2003.

Receipt is acknowledged of the IDS filed on October 22, 2003 which has been considered and placed of record in the file.

Claims 1-24 are presented for examination.

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the limitations of "microcellular or microporous" has no support in the specification. In the specification of the instant application, page 9, paragraph 2, the examiner only found the term "foam" to describe the polishing layer 82. In accordance with the attached definition from the Material Handbook, Foam material is material with spongelike, cellular structure. Applicant is required to provide the clarification between cellular and microcellular in the response to this action. Thus, for the purpose of examination, the examiner does not differentiate the term "microporous" set forth in the claim and "porous" of the prior art.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4, 6, 7, 8, 10, 12, 13, 14, 16, 18, 19, 20, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ibrahim'4,396,657 in view of Benedict et al.'6,406,577 and Kimura et al.'4,753,838.

With reference to col. 8, lines 26-68, Ibrahim discloses the claimed invention.

1. In a coated abrasive product having a backing comprising continuous synthetic multifilament yarns, the improvement wherein said continuous synthetic multifilament yarns are impregnated to an extent of at least 15% of the mass of the yarns with a material which is the cured product of a liquid saturant comprising:
(a) an epoxide resin with an epoxide equivalent weight between 150 and 600; and
(b) a curing agent selected from the group consisting of
(i) an amount of dicyandiamide within the range of 15-100 grams for each epoxide gram equivalent weight present in the epoxide resin specified in part (a),
(ii) an amount of imidazole or alkyl or aryl substituted imidazole corresponding to from 1 to 5 percent by weight of the amount of epoxide resin specified in part (a), and
(iii) an amount of an organic compound comprising at least two reversibly blocked isocyanate groups per molecule corresponding to from 5 to 20 percent by weight of the amount of epoxide resin specified in part (a).

2. In a coated abrasive product as in claim 1 wherein the epoxide resin has an epoxide equivalent weight of 200.

3. In a coated abrasive product as in claim 1, wherein the epoxide resin is an aqueous dispersion of an epichlorohydrin and bisphenol A condensate with an average of 3 epoxide groups per molecule and an epoxide equivalent weight of approximately 200.

4. In a coated abrasive product as in claim 1, wherein the curing agent is 2-Phenyl Imidazole.

5. In a coated abrasive product as in claim 4, wherein the amount of curing agent is in the range of 1 to 10% by weight of the epoxide resin solids present in the adhesive composition.

6. In a coated abrasive product as in claim 1, wherein the epoxide resin is an aqueous dispersion of epichlorohydrin and bisphenol A with an average of 2 epoxide groups per molecule, an epoxide equivalent weight of 500-600, and the curing agent is a combination of dicyandiamide and 2-methyl imidazole in a weight percentage ratio of 3.3:0.55 based on the epoxide resin.

7. A coated abrasive according to any one of claims 1-6 in the shape of an endless belt.

* * * * *

However, Ibrahim does not show that the endless abrasive belt is seamless and that the polishing layer comprising a microcellular or microporous urethane.

With reference to Figs. 3 and 4, Benedict discloses a coated abrasive backing consisting of an endless, seamless loop.

FIG. 4

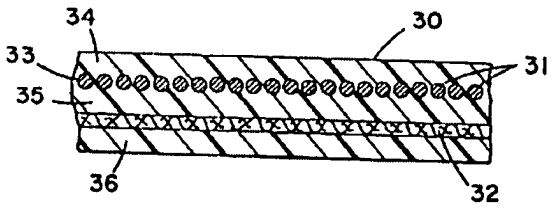
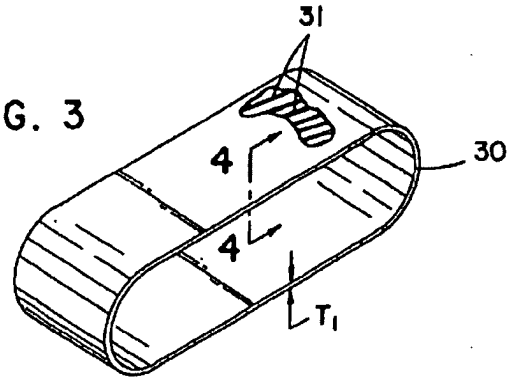


FIG. 3



In col. 11, lines 29-41, Benedict further discloses the fabric is aramid yarn for its outstanding heat battle.

By "heat resistant" organic fibrous material, it is meant that useable organic materials should be sufficiently resistant to melting, or otherwise softening or breaking down, under the conditions of manufacture and use of the coated abrasive backings of the present invention. Useful natural organic fibrous materials include wool, silk, cotton, or cellulose. Examples of useful synthetic organic fibrous materials are made from polyvinyl alcohol, nylon, polyester, rayon, polyamide, acrylic, polyolefin, aramid, or phenol. The preferred organic fibrous material for applications of the present invention is aramid fibrous material. Such a material is commercially available from the Dupont Co., Wilmington, Del. under the trade names of "Kevlar" and "Nomex."

The advantage of a seamless abrasive belt is to eliminate problems associated with belt having splice (col. 2, lines 11-25).

With reference to Fig. 1, col. 3, lines 19-35, Kimura et al.'4,753,838 discloses a polishing sheet especially useful in the polishing of silicon wafer.

By "heat resistant" organic fibrous material, it is meant that useable organic materials should be sufficiently resistant to melting, or otherwise softening or breaking down, under the conditions of manufacture and use of the coated abrasive backings of the present invention. Useful natural organic fibrous materials include wool, silk, cotton, or cellulose. Examples of useful synthetic organic fibrous materials are made from polyvinyl alcohol, nylon, polyester, rayon, polyamide, acrylic, polyolefin, aramid, or phenol. The preferred organic fibrous material for applications of the present invention is aramid fibrous material. Such a material is commercially available from the Dupont Co., Wilmington, Del. under the trade names of "Kevlar" and "Nomex."

The advantage of the microporous cells is to hold a polishing slurry.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the polishing article of Ibrahim with a seamless endless belt as taught by Benedict to eliminate problems associated with splice in endless belt (col. 2, lines 11-25); and further modified with a microporous polishing layer as taught by Kimura to hold a polishing slurry during polishing the semiconductor wafer.

Regarding to claims 4, 10, 16, and 22, Official Notice is taken that it is known to provide grooves on the surface of the polishing pad to facilitate slurry transport between the pad surface and the wafer surface to obtain uniform polishing. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the endless polishing belt of Ibrahim as modified by Benedict and Kimura with a known method of providing grooves on the surface of the endless belt to facilitate slurry transport between the pad surface and the wafer surface to obtain uniform polishing.

Regarding to claims 6, 12, 18, and 24, Official Notice is taken that it is known to provide glass beads distributed within the polishing pad so as to effect stiffening of the pad at

the polishing surface to obtain uniform polishing. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the endless polishing belt of Ibrahim as modified by Benedict and Kimura with a known method of providing glass beads distributed within the polishing pad so as to effect stiffening of the pad at the polishing surface to obtain uniform polishing. Regarding to the "hollow beads", It would have been an obvious matter of design choice to have utilized hollow beads as set forth in the claim, since applicant has not disclosed that hollow bead solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with solid glass bead of the prior art.

Allowable Subject Matter

4. Claims 3, 5, 9, 11, 15, 17, 21, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Nguyen whose telephone number is 703-308-0163. The examiner can normally be reached on Monday-Friday/630AM-300PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 703-308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George Nguyen
Primary Examiner

George Nguyen
Primary Examiner
Art Unit 3723

GN – July 09, 2004